CLAIM 1. An electrochemical cell, comprising:

a first electrode;

a second electrode;

a proton exchange membrane disposed between and in intimate contact with the first electrode and the second electrode; and

a pressure pad disposed in electrical communication with the first electrode, the pressure pad comprising an electrically conductive sheet, the sheet having a structure conformable to pressure variations within the cell.

CLAIM 2. The electrochemical cell of claim 1 wherein the sheet comprises a member having dimples disposed over a surface thereof, the dimples imparting a resilience to the pressure sheet in response to pressure variations across the electrochemical cell.

CLAIM 3. The electrochemical cell of claim 2 further comprising an elastomeric member disposed at the dimples.

CLAIM 4. The electrochemical cell of claim 1 wherein the sheet includes corrugations disposed therein, the corrugations providing a resilience to the pressure pad in response to pressure variations across the electrochemical cell.

CLAIM 5. The electrochemical cell of claim 4 further comprising an elastomeric member disposed at the corrugations.

CLAIM 6. The electrochemical cell of claim 5 wherein the elastomeric member is transversely threaded through the corrugations.

CLAIM 7. An electrochemical cell, comprising:

a first electrode;

a second electrode;

a membrane disposed between the first electrode and the second electrode; and

a pressure pad disposed in electrical communication with the first electrode and being configured to support the first electrode, the second electrode, and the membrane, the pressure pad comprising an electrically conductive compression member.

CLAIM 8. The electrochemical cell of claim 7 wherein the electrically conductive compression member is a canted coil spring.

CLAIM 9. The electrochemical cell of claim 7 further comprising a partition member disposed adjacent to the electrically conductive compression member.

CLAIM 10. The electrochemical cell of claim 7 wherein the electrically conductive compression member is arranged to form a ring.

CLAIM 11. A resilient pressure pad for an electrochemical cell, the pressure pad comprising:

an electrically conductive planar member; and

a plurality of electrically conductive dimples disposed at a first surface of the planar member, the dimples being configured to impart resilience to the pressure pad in response to pressure variations within the cell.

CLAIM 12. The pressure pad of claim 11 wherein the dimples are semi-spherical in geometry.

CLAIM 13. The pressure pad of claim 12 wherein the dimples each comprise a stress point, the stress point defining a point at which the dimples collapse under pressure.

CLAIM 14. The pressure pad of claim 11 wherein the dimples are frusto-pyramidical in geometry.

CLAIM 15. The pressure pad of claim 14 further comprising an elastomeric member disposed at the dimples.

CLAIM 16. The pressure pad of claim 15 wherein the elastomeric member is disposed at the first surface of the planar member adjacent the dimples.

CLAIM 17. The pressure pad of claim 15 wherein the elastomeric member is disposed at a second surface of the planar member, the second surface of the planar member being defined by an obverse surface of the planar member.

CLAIM 18. The pressure pad of claim 15 wherein the elastomeric member is disposed within cavities defined by the dimples.

CLAIM 19. The pressure pad of claim 15 wherein the elastomeric member is a fluorosilicone, a fluoroelastomer, or a combination thereof.

CLAIM 20. The pressure pad of claim 11 wherein the electrically conductive planar member is copper, silver, gold, chromium, zirconium, tantalum, titanium, niobium, iron, nickel, cobalt, hafnium, tungsten, alloys thereof, electrically conductive carbon, electrically conductive polymer, or combinations of the foregoing materials.

CLAIM 21. The pressure pad of claim 15 further comprising an elastomeric member threaded through the dimples.

CLAIM 22. The pressure pad of claim 11 wherein the pressure pad is disposed in fluid communication with an electrode in the electrochemical cell.

CLAIM 23. A resilient pressure pad disposed in fluid communication with an electrode in an electrochemical cell, the pressure pad comprising:

an electrically conductive corrugated member.

CLAIM 24. The pressure pad of claim 23 further comprising an elastomeric member disposed at the corrugated member.

CLAIM 25. The pressure pad of claim 24 wherein the elastomeric member is positioned to extend longitudinally between two raised portions formed by a raised portion in the corrugated member.

CLAIM 26. The pressure pad of claim 24 wherein the elastomeric member is threaded transversely through the raised portions in the corrugated member.

CLAIM 27. The pressure pad of claim 24 wherein the elastomeric member is electrically conductive.

CLAIM 28. The pressure pad of claim 23 wherein the electrically conductive corrugated member is copper, silver, gold, chromium, zirconium, tantalum, titanium, niobium, iron, nickel, cobalt, hafnium, tungsten, alloys thereof, electrically conductive carbon, an electrically conductive polymeric material, or a combination of the foregoing materials.

CLAIM 29. The pressure pad of claim 24 wherein the elastomeric member is a fluorosilicone, a fluoroelastomer, or a combination thereof.

CLAIM 30. A pressure pad for an electrochemical cell, the pressure pad comprising: an electrically conductive compression member.

CLAIM 31. The electrochemical cell of claim 30 wherein the electrically conductive compression member is a canted coil spring.

CLAIM 32. The electrochemical cell of claim 30 further comprising a partition member disposed adjacent to the electrically conductive compression member.

CLAIM 33. The electrochemical cell of claim 30 wherein the electrically conductive compression member is arranged to form a ring.

CLAIM 34. A method of fabricating a resilient pressure pad, comprising:

disposing dimples at an electrically conductive member.

CLAIM 35. The method of claim 34 wherein the disposing of the dimples at the electrically conductive member comprises stamping the electrically conductive member such that dimples are formed thereon.

CLAIM 36. The method of claim 34 wherein the disposing of the dimples at the electrically conductive member comprises casting the electrically conductive member such that dimples are formed thereon.

CLAIM 37. The method of claim 34 further comprising disposing an elastomeric member at the dimples.

CLAIM 38. The method of claim 37 wherein the disposing of the elastomeric member at the dimples comprises threading the elastomeric member through the dimples.

CLAIM 39. A method of fabricating a resilient pressure pad, comprising:

disposing corrugations in an electrically conductive member.

CLAIM 40. The method of claim 39 further comprising disposing an elastomeric member at the corrugations.

CLAIM 41. The method of claim 40 wherein the disposing of the elastomeric member at the corrugations comprises threading the elastomeric member transversely through the corrugations.

CLAIM 42. A method of maintaining compression within an electrochemical cell, the method comprising:

disposing an electrically conductive member and a compression member at an electrode of the electrochemical cell;

applying a load at the cell to compress the cell components; and

maintaining electrical communication between the electrode and an external load through the electrically conductive member.

CLAIM 43. A method of maintaining compression within an electrochemical cell, the method comprising:

disposing a compressible electrically conductive member at an electrode;

applying a load at the cell to compress the cell components; and

maintaining electrical communication between the electrode and an external load through the electrically conductive member.